

# CHICAGO

## Electric<sup>®</sup> Power Tools

### Electric Hand Mortar Mixer

**Model 93841**

#### ASSEMBLY AND OPERATING INSTRUCTIONS



*Due to continuing improvements, actual product may differ slightly from the product described herein.*



3491 Mission Oaks Blvd., Camarillo, CA 93011  
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**For technical questions and replacement parts, please call 1-800-444-3353**

## Specifications

Construction	Heavy Duty 2-gear variable-speed mixer with power cord	Amperage	13 Amps peak 7 Amps loaded
Power Cord	16 AWG x 2C 12' cord with GFCI plug	Power Requirement	120V / 60Hz , 1600/1800W
Gear Select 1	150 - 300 RPM	Gear Select 2	400 - 650 RPM
Overall Dimensions	3' L with attached paddle 17-½" L at bow handle 9" W bow handle 6" L handle / grip 13-¼" L mixer only	Included Paddle	6.5" diameter
		Net Weight	14.3 lbs.
		Gear Drive	Triple Gear Reduction

## Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

## Safety Warnings and Precautions

**WARNING:** When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

### *Read all instructions before using this tool!*

- Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
- Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.
- Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt whether the outlet is properly grounded.** If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
- Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation eliminates the need for the three wire grounded power cord and grounded power supply system.
- Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- Do not abuse the Power Cord. Never use the Power Cord to carry the tool or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.

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## Personal Safety

9. **When operating a power tool outside, use an outdoor extension cord marked “W-A” or “W”.** These extension cords are rated for outdoor use, and reduce the risk of electric shock.
10. **Stay alert. Watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
11. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
12. **Avoid accidental starting. Be sure the Power Switch is off before plugging in.** Carrying power tools with your finger on the Power Switch, or plugging in power tools with the Power Switch on, invites accidents.
13. **Remove adjusting keys or wrenches before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.
14. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.
15. **Use safety equipment. Always wear eye protection.** Dust mask, nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

## Tool Use and Care

16. **Use clamps (not included) or other practical ways to secure and support the work piece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
17. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
18. **Do not use the power tool if the Power Switch does not turn it on or off.** Any tool that cannot be controlled with the Power Switch is dangerous and must be replaced.
19. **Disconnect the Power Cord Plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
20. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
21. **Maintain tools with care. Keep cutting tools maintained and clean.** Properly maintained tools are less likely to bind and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.
22. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool’s operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.

## Service

23. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
24. **When servicing a tool, use only identical replacement parts.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

## Specific Safety Rules

1. **Maintain labels and nameplates on the tool.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. **Always wear ANSI-approved safety impact eye goggles and heavy work gloves when using the tool.** Using personal safety devices reduce the risk for injury. Safety impact eye goggles and heavy work gloves are available from Harbor Freight Tools.
3. **Make sure to read and understand all instructions and safety precautions as outlined in the mortar manufacturer's manual.**
4. **When starting a handheld power tool, always maintain a firm grip on the tool with both hands to resist starting torque.**
5. **Always keep the extension cord away from moving parts on the tool.**
6. **Always use mixing paddles appropriate to the material being mixed.**
7. **Never lay the tool down until the motor has come to a complete stop.** The tool may create unforeseen risk while the motor cycles down.
8. **Never leave the tool unattended when it is plugged into an electrical outlet.** Turn off the tool, and unplug it from its electrical outlet before leaving.
9. **People with pacemakers should consult their physician(s) before using this product.** Electromagnetic fields in close proximity to a heart pacemaker could cause interference to or failure of the pacemaker. In addition, people with pacemakers should adhere to the following:
  - Avoid operating power tools alone.
  - Don't use a power tool with the power switch locked on.
  - If powered via a power cord be certain that the tool is properly grounded. A ground fault interrupt (GFCI) system is also a good precaution. This inexpensive device is a good safety measure because it prevents a sustained electrical shock.
  - Properly maintain and inspect all tools before use to avoid electrical shock.
10. **Use this tool with both hands firmly gripping the handles at all times.**
11. **Keep hands, stirring tools, and other objects away from moving parts of this tool at all times.**
12. **Keep children away from the work area.** Do not let children play with this tool or play in the work area.

## GROUNDING

**⚠ WARNING!** Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

### GROUNDING TOOLS: TOOLS WITH THREE PRONG PLUGS

1. Tools marked with "Grounding Required" have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. **(See Figure A.)**
2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal. **(See Figure A.)**
3. Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the following illustration. **(See Figure A.)**

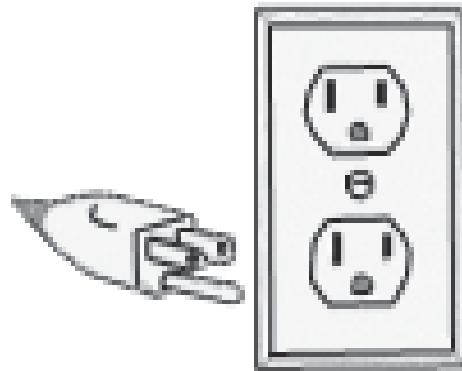


Figure A

### DOUBLE INSULATED TOOLS: TOOLS WITH TWO PRONG PLUGS

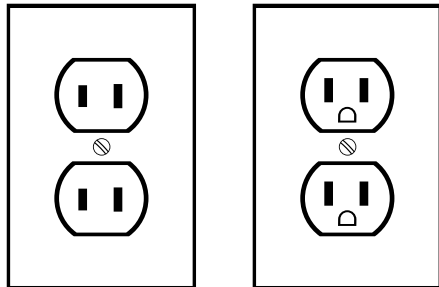


Figure B

4. Tools marked "Double Insulated" do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code. **(See Figure B.)**
5. Double insulated tools may be used in either of the 120 volt outlets shown in the following illustration. **(See Figure B.)**




## EXTENSION CORDS

1. ***Grounded*** tools require a three wire extension cord. ***Double Insulated*** tools can use either a two or three wire extension cord.
2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. **(See Figure C, below.)**
3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. **(See Figure C.)**
4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. **(See Figure C.)**
5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. **(See Figure C.)**
6. If you are using an extension cord outdoors, make sure it is marked with the suffix “W-A” (“W” in Canada) to indicate it is acceptable for outdoor use.
7. Make sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

**Figure C.**

Recommended Minimum Wire Gauge for 120 Volt Extension Cords*					
Nameplate Amperes (At Full Load)	Extension Cord Length				
	25 Feet	50 Feet	75 Feet	100 Feet	150 Feet
0 - 2.0	18	18	18	18	16
2.1 - 3.4	18	18	18	16	14
3.5 - 5.0	18	18	16	14	12
6.1 - 7.0	18	16	14	12	12
7.1 - 12.0	16	14	12	10	X
12.1 - 16.0	14	12	10	X	X
16.1 - 20.0	12	10	X	X	X

## SYMBOLOLOGY

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
V ~	Volts Alternating Current
A	Amperes
no load xxxx per min.	No Load Revolutions per Minute

# Unpacking

**When unpacking, check to make sure that the product is intact and undamaged.**

**Your kit includes the Mixer, 6.5" Mixing Paddle, and two 22mm Open-end Wrenches.**

If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual.

## Assembly

**CAUTION:** Be sure the tool is unplugged from any power source before performing any installation or adjustment of the tool.

***Your Mixer is preassembled. To use it, you must select and install a mixing paddle. To install a paddle:***

1. Align the threaded end of the Mixing Paddle with the threaded end of the Spindle (17). Turn the Paddle Mixer clockwise into the Spindle to tighten it. Secure the Paddle Mixer in the Spindle using the Wrenches.
2. To remove a paddle mixer, use one Wrench to unscrew the Paddle Mixer by turning it counterclockwise. Use the other wrench as a holdback on the Spindle (17).

**NOTE:** Periodically check to be sure the Mixing Paddle remains tight. Never try to retighten the handles while the tool is running or plugged in. If necessary, unplug the tool, and tighten the Mixing Paddle.

### ***About Low Speed and Heavy-duty Mixing Tools:***

While an extremely useful tool, heavy-duty mixing tools can be dangerous if used improperly or in damaged condition.

1. This tool incorporates a triple gear reduction transmission to reduce mixer speed while increasing torque. This design improves performance when mixing heavy materials. This feature also helps prevent the tool from "bogging down" or stopping when under heavy load.
2. This tool has two power ranges, low and high. It will operate at variable speed within each power range.

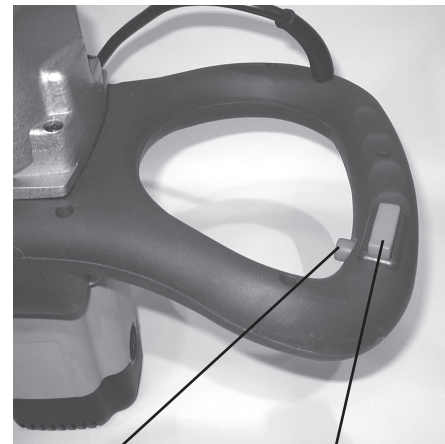


# Using the Mixing Tool

## Operating the Power Switch

*The Power Switch (2) has a trigger lock feature.*

1. Do not start the tool until you have observed all safety preparations and are ready to work.
2. Squeeze the Power Switch (2). The tool will start to operate. You can lock the Power Switch on the ON position by pressing the Trigger Lock (7) while the Power Switch is depressed. Release the Power Switch, and the tool will continue to operate.
3. Stop the tool by squeezing and releasing the Power Switch.

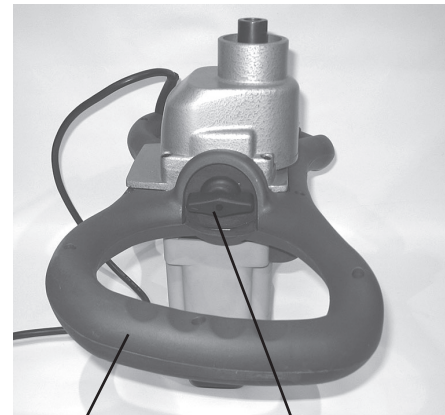


Trigger Lock (7) Power Switch (2)

## Selecting the High or Low Gear Range

Select an operating speed range depending on the material being mixed. Use a slower speed for heavy materials and when beginning to mix. Use a higher speed for lighter materials, and as the material becomes smoother after partial mixing.

1. To select an operating speed range, first turn OFF the mixer. Turn the Gear Selector Switch to the desired gear range.
2. Gear Select #1 will operate at 384 - 725 RPM. Gear Select #2 will operate at 180 - 334 RPM.



Gear Selector Switch (43)  
Variable Speed Dial not shown

## Adjusting the Mixer Speed

You can adjust the mixer speed by rotating the Variable Speed Dial located on the Handle (1) on the same side as the Gear Selector Switch (43). The Variable Speed Dial is not shown in the photos

1. The Variable Speed Dial is marked #1 (lowest speed) through #5 (highest speed).
2. The speed of the tool may be varied while in operation.

## Operating the Mixer

*Before using the Mixing Tool, be sure all work area safety precautions are being observed. Be sure to wear ANSI-approved eye protection.*

1. Move the Gear Selector Switch (43) to Gear Select #2, and rotate the Variable Speed Dial to #1.
2. Hold the Mixing Paddle above the material to be mixed. Squeeze the Power Switch to start the tool. Lower the end on the Mixing Paddle slowly into the work material. If the tool bogs down, remove the Mixing Paddle from the material. Since you have set the tool in its most powerful position, you must either use a larger diameter mixing paddle, choose lower viscosity work material, or try mixing a smaller quantity of material at a time.
3. If the tool mixes the work material well, you may try moving the Variable Speed Dial to a higher speed setting. Do not overload the tool. If the tool bogs down, stop the tool and change to the gear select # 2 position. On medium or light viscosity materials, you may stop the tool, move the Gear Selector to the higher speed setting #1, move the Variable Speed Dial to its lowest setting, and restart the tool. You may then experiment with increasing the speed of the tool by operating the Variable Speed Dial.



4. When the material has been mixed, remove the mixing paddle from the material and release pressure from the Power Switch, allowing the tool to stop operating.
5. Clean the mixing paddle before storing the tool. If the material you are mixing is water based, you may do this easily by operating the tool in a bucket of water. Unplug the tool, and remove the mixing paddle from the mixing head. Wipe down the mixing paddle to finish cleaning it. Spray the paddle with light oil to prevent rust while in storage.
6. Store your tool in a safe place. Protect the motor from moisture.

**NOTE:** The motor will heat up as it is used. To avoid motor burn out, do not use continuously for more than 20 minutes at a time. Allow the tool to cool down for at least 10 minutes before resuming work.

## Maintenance and Inspection

1. The mixing head is the main part of the tool. Protect its electrical components from moisture or oil intrusion.
2. Inspect the Carbon Brushes (52) regularly. Replace them if they are more than 1/3 worn or are chipped or cracked. When handling them, be careful not to damage them. To reduce wear after inspection, replace them in exactly the same way as they were removed.
3. Regularly inspect all components and fasteners to be sure they are properly installed, not damaged, and tight. Tighten any loose parts. Repair or replace any damaged components.
4. If the tool is damaged or does not function properly, take it to a qualified service technician.
5. Following the mortar material suppliers instructions, clean the tool after each use, and store it properly. Keep it out of reach of children and other unauthorized persons. Protect it from moisture and corrosive materials.

## Troubleshooting

1. **Mixer will not turn ON.**  
*Possible Cause:* No power source. *Solution:* Check that the power cord is plugged into an appropriate live outlet. Check that power cord is in good condition.  
*Possible Cause:* Damaged Carbon Brushes. *Solution:* Unplug tool. Remove and inspect Carbon Brushes. If glazed, they can be cleaned with a pencil eraser. If chipped, cracked or worn out, they must be replaced. Reinstall good Carbon Brushes. Plug in tool and try again.  
*Possible Cause:* Damaged or burned out Rotor or Stator. *Solution:* Take to a qualified service technician for replacement or repair.
2. **Mixing Paddle “wobbles” on Spindle.**  
*Possible cause:* Mixing paddle is loose on Spindle (14). *Solution:* Use the Wrenches to tighten the mixing paddle onto the Spindle by turning clockwise. See the Assembly section on page 7.

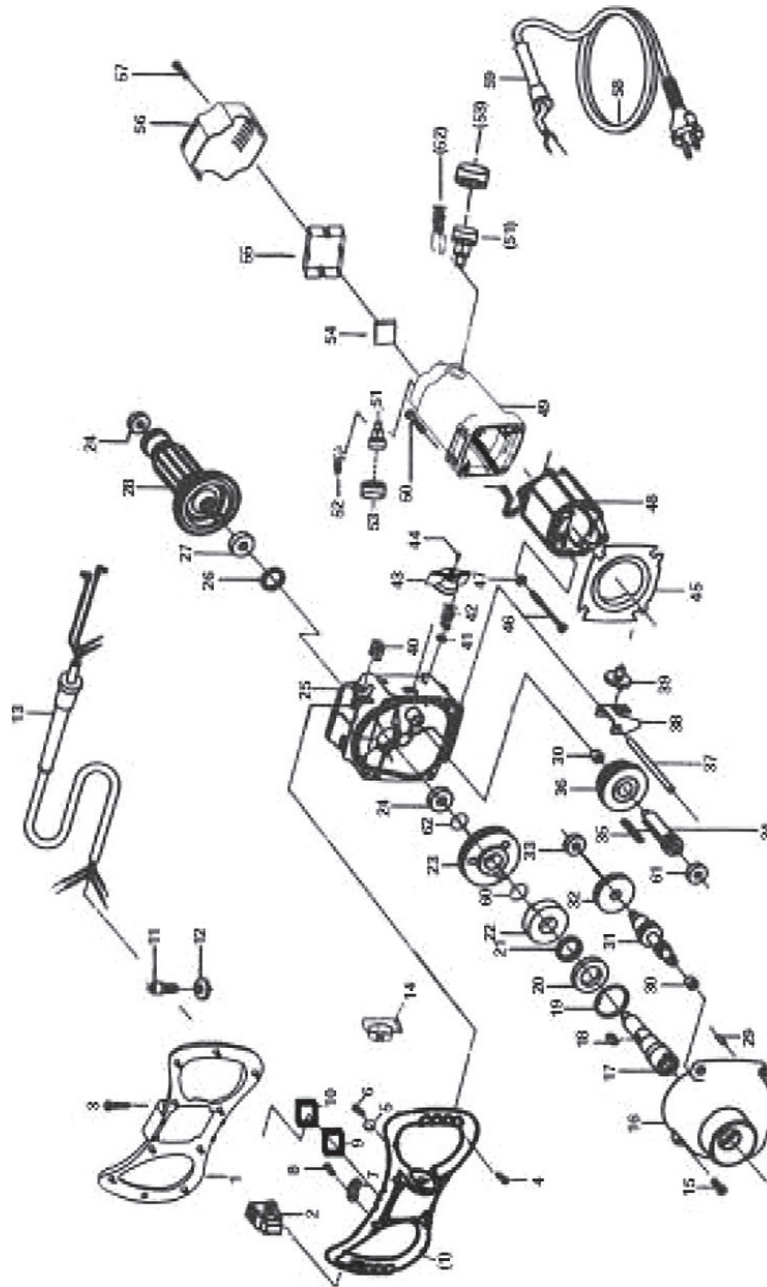
## Parts List

Part	Description	QTY.
1	Handle	1
2	Power Switch	1
3	Screw ST3 m5x16	10
4	Screw ST4 m4x20	10
5	Spring Washer	10
6	Screw m5x10	1
7	Trigger Lock	2
8	Screw ST3 m5x16	1
9	Capacitor	1
10	Inductor	4
11	Screw m8x16	4
12	Flat Washer	1
13	Electrical Wire	1
14	Circuitry Board	1
15	Screw m5x16	1
16	Bearing Cover	1
17	Spindle	1
18	Hemicycle Key	1
19	Safety Ring	1
20	Dust Cover	1
21	Felted Wool	1
22	Bearing 6204DDU	1
23	Spindle Gear	1
24	Bearing 6000ZZ	2
25	Gearbox	1
26	Seal Ring	1
27	Bearing 6001ZZ	1
28	Armature Assembly	1
29	Pin	1
30	Needle Bearing	2
31	Countershaft	1

Part	Description	QTY.
32	Motor Gear	1
33	Bearing 608ZZ	1
34	Pinion	1
35	Parallel Key	1
36	Double Gear	1
37	Pivot Pin	1
38	Pivot Base	1
39	Pivot	1
40	Nut m8	2
41	Ball 4	1
42	Spring	1
43	Gear Selector Switch	1
44	Screw ST m6x16	1
45	Air Guiding Shim	1
46	Screw ST m5x65	2
47	Spring Washer	2
48	Stator	1
49	Motor Box	1
50	Screw m5x25	4
51	Brush Holder	2
52	Carbon Brush	2
53	Brush Cap	2
54	Controller	1
55	Protective Guard	1
56	Rear Cover	1
57	Screw ST3 m5x16	2
58	Cord	1
59	Sleeve	1
60	Safety Ring	1
61	Bearing 608ZZ	1
62	Safety Ring	1

**NOTE:** Some parts are listed and shown for illustration purposes only and are not available individually as replacement parts.

# Assembly Drawing



**Record Product's Serial Number:** \_\_\_\_\_ .

Note: If product has no serial number, record month and year of purchase.

## PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

## WARRANTY

**CHICAGO**  
**Electric® Power Tools**

### ***LIMITED 90 DAY WARRANTY***

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of ninety days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**3491 Mission Oaks Blvd. • PO Box 6009 • Camarillo, CA 93011 • (800) 444-3353**